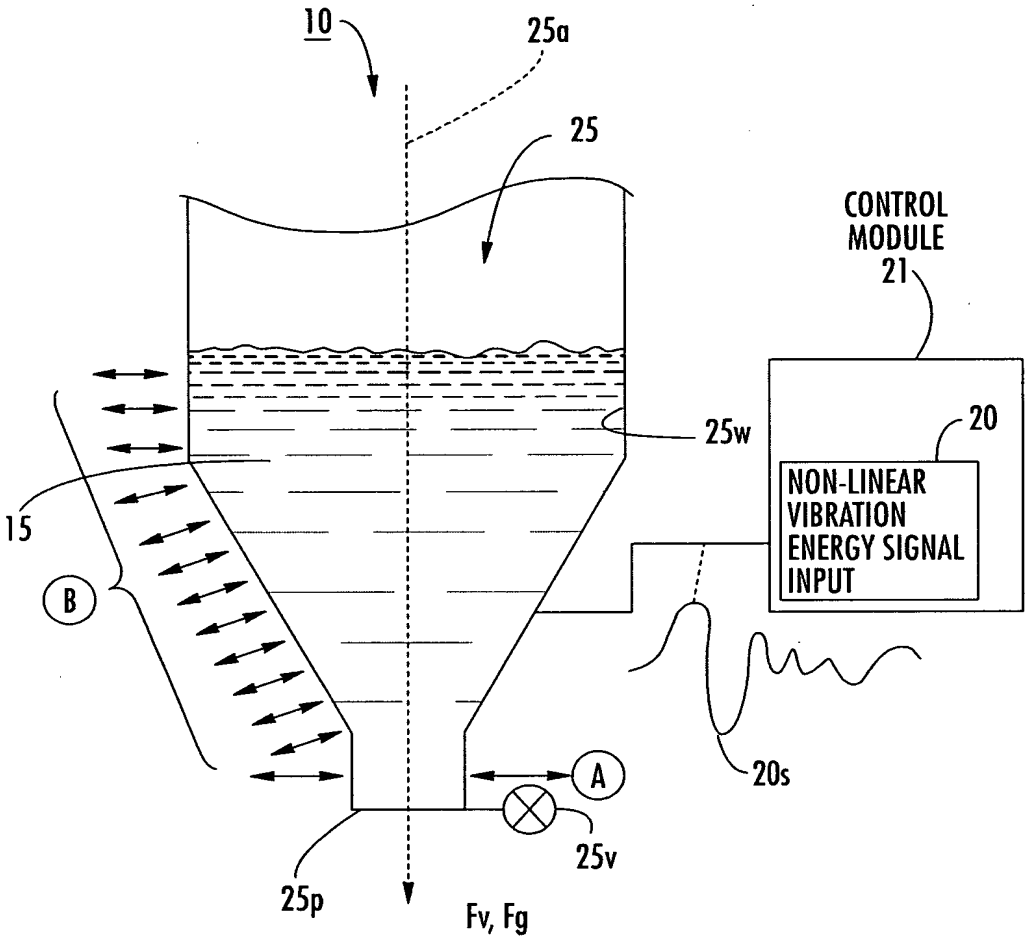


FIG. 1A

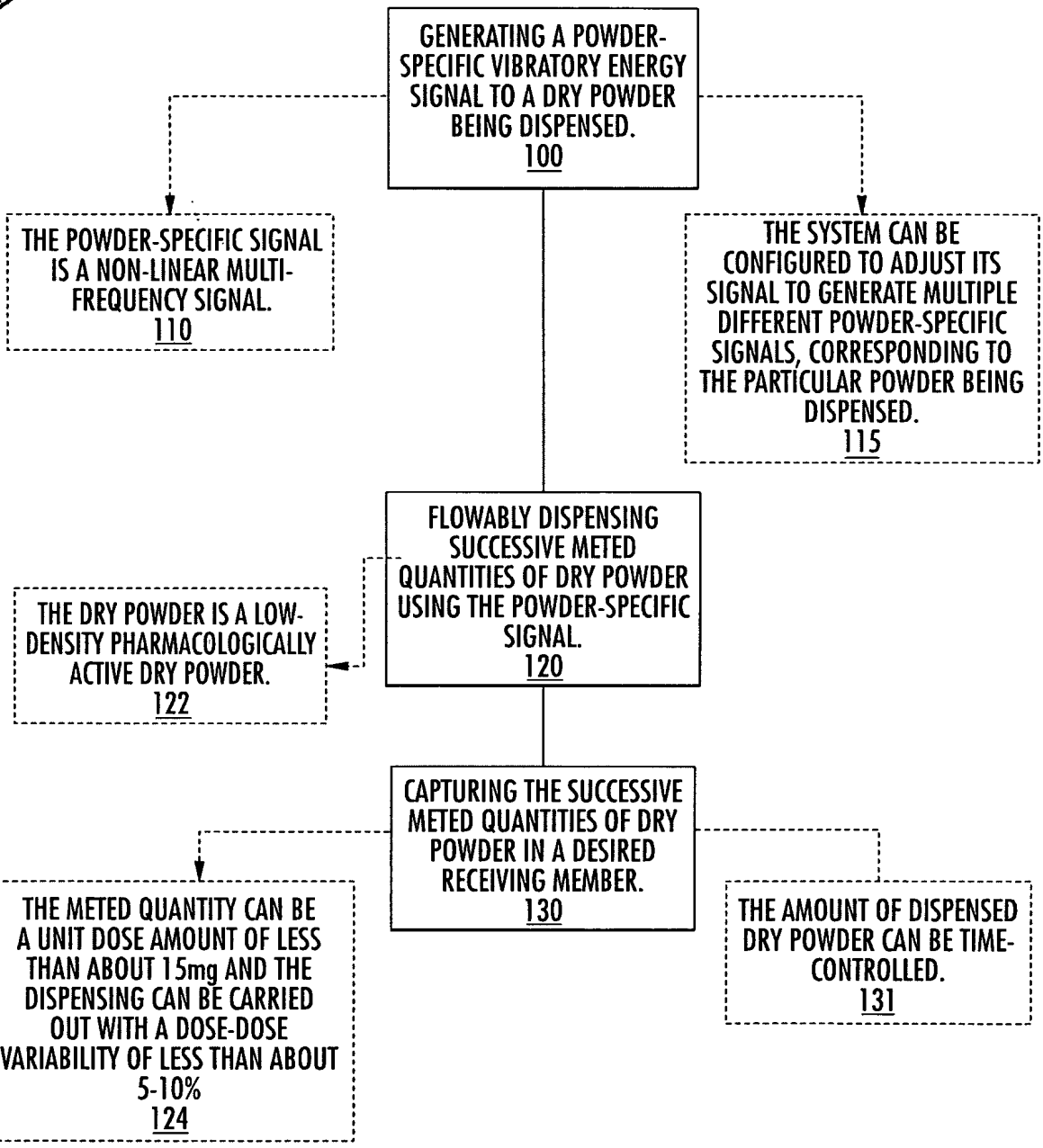


FIG. 1B

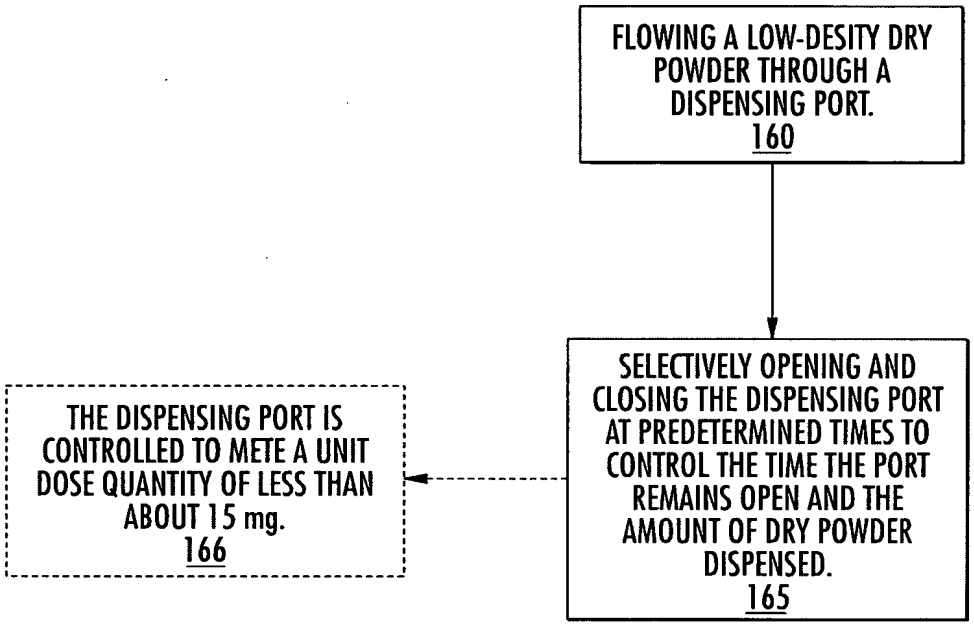


FIG. 1C

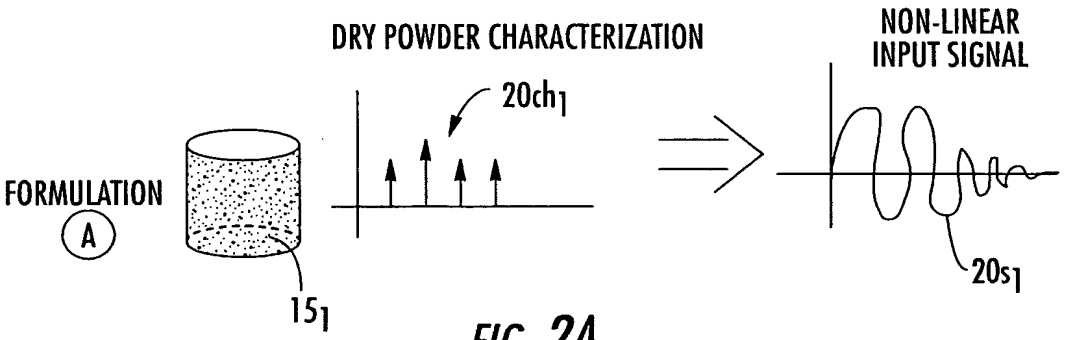


FIG. 2A

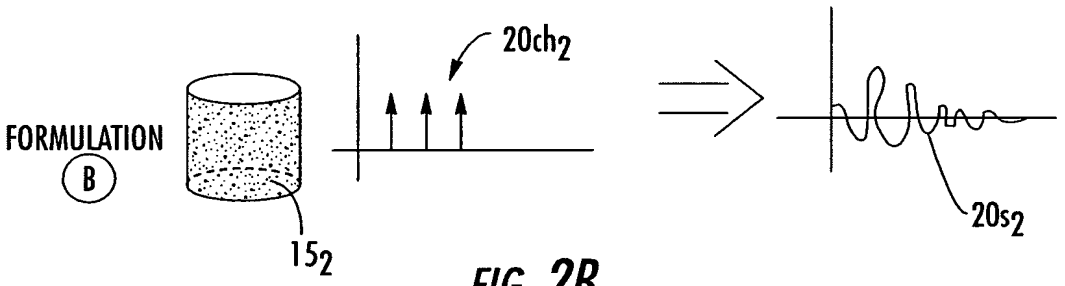


FIG. 2B

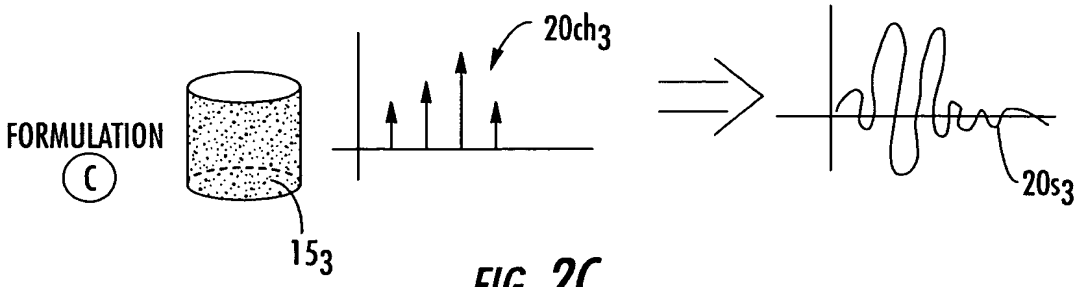


FIG. 2C

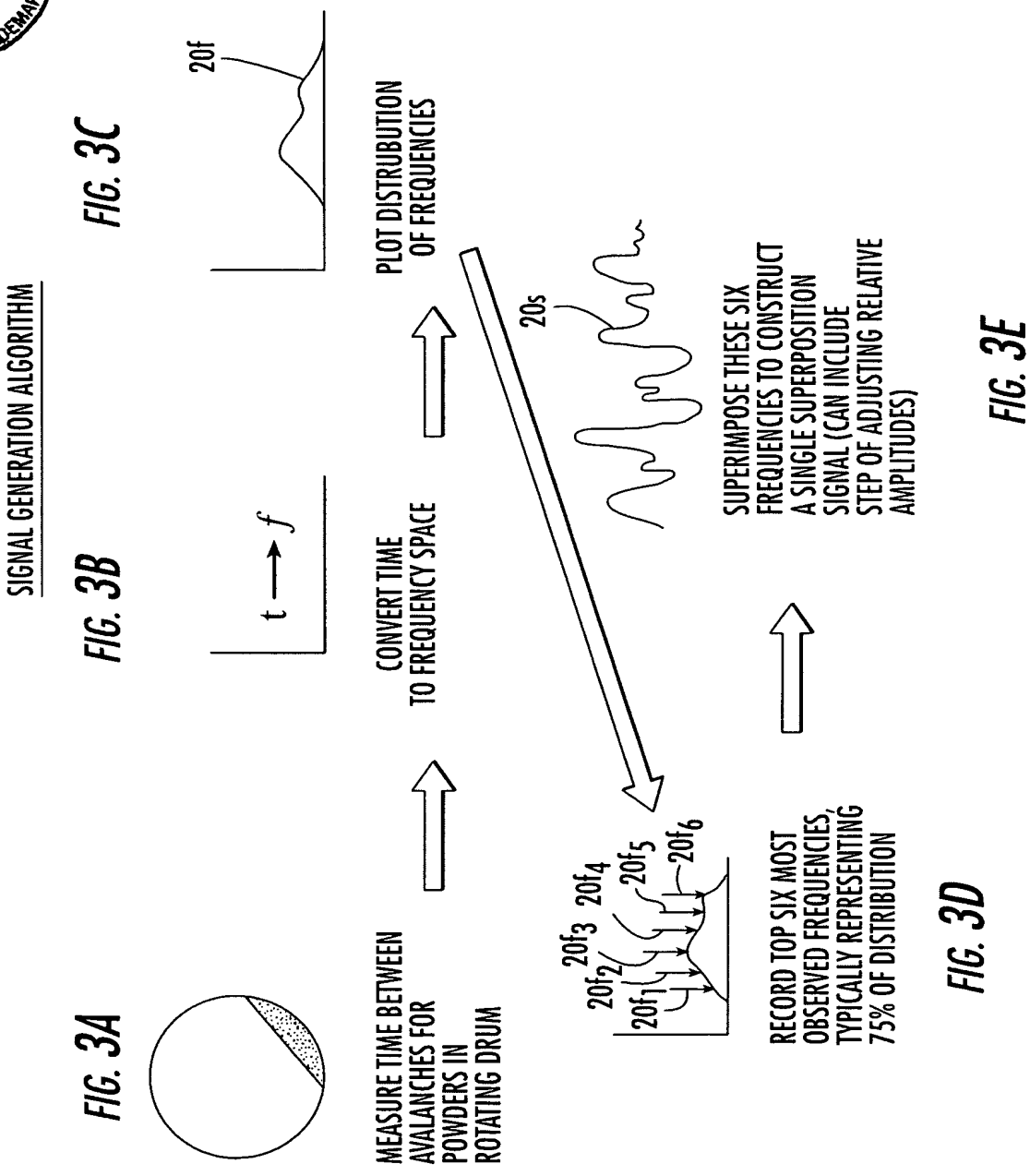


FIG. 3A FIG. 3B FIG. 3C FIG. 3D FIG. 3E

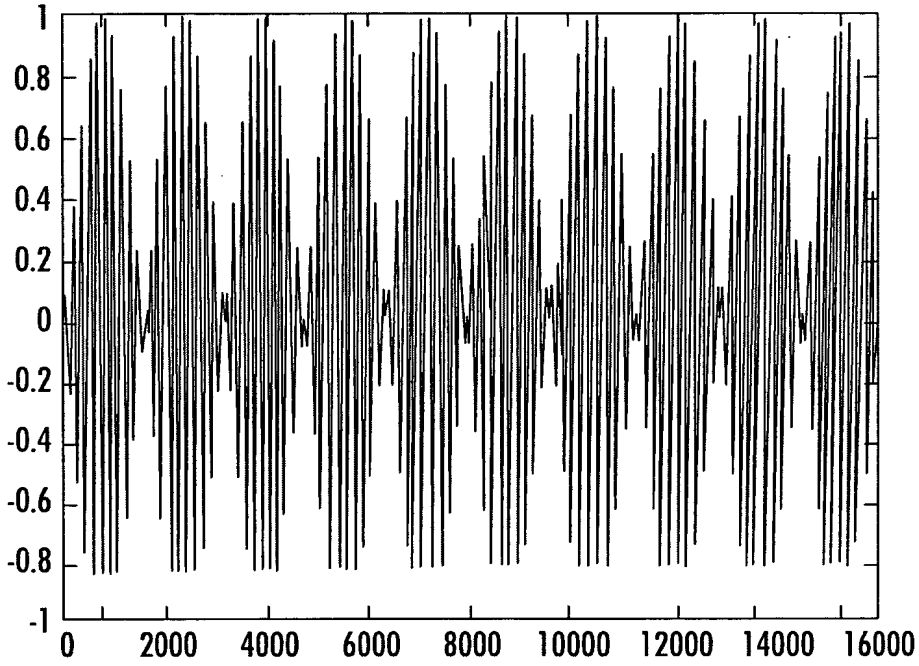


FIG. 4

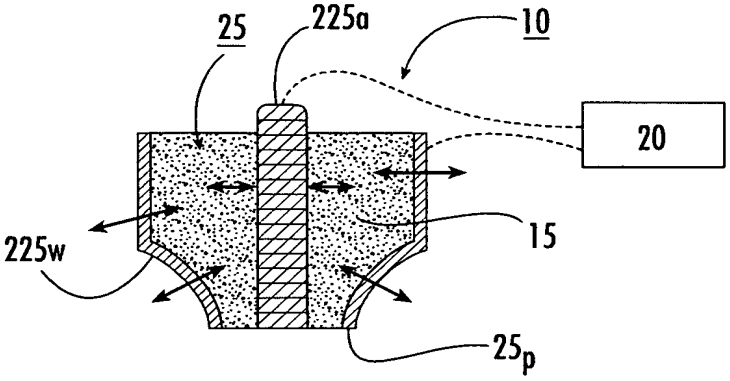


FIG. 5A

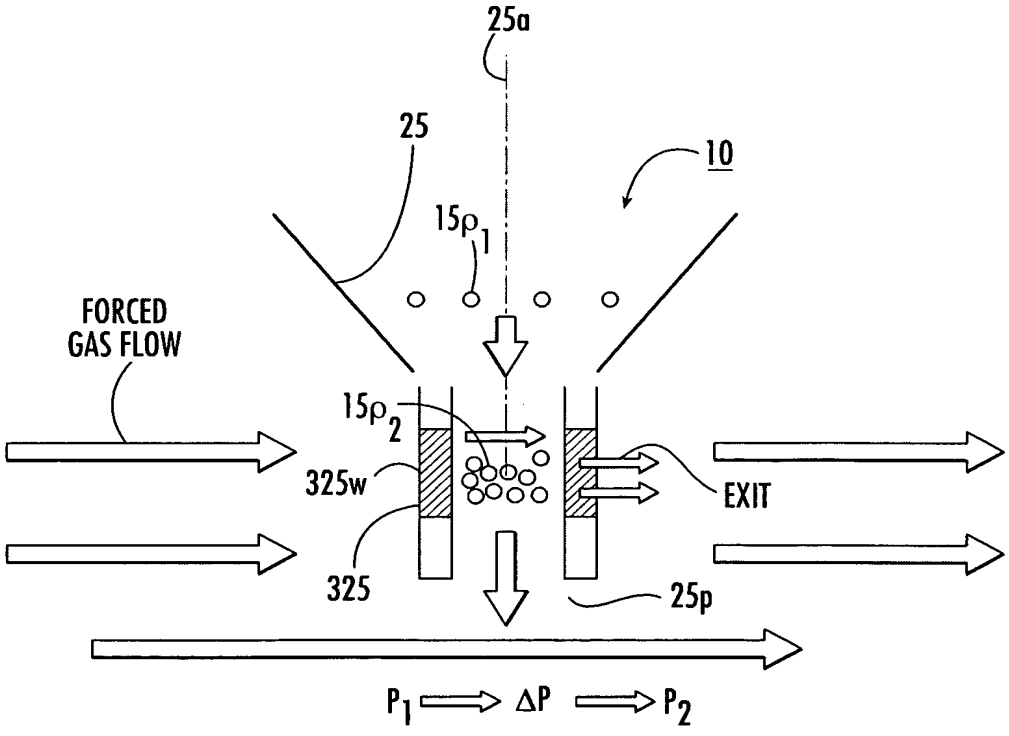


FIG. 5B

NON-LINEAR VIBRATION / CENTRIFUGATION PRINCIPLE OF POWDER FILLING

BASIC PRINCIPLE:

COMBINE NON-LINEAR FUNCTION WITH CENTRIFUGAL MOTION

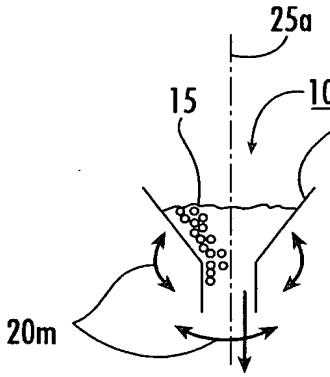


FIG. 6

OSCILLATE ON AXIS

THIS CAN BE ADAPTED TO LOCAL NON-LINEAR VIBRATION.

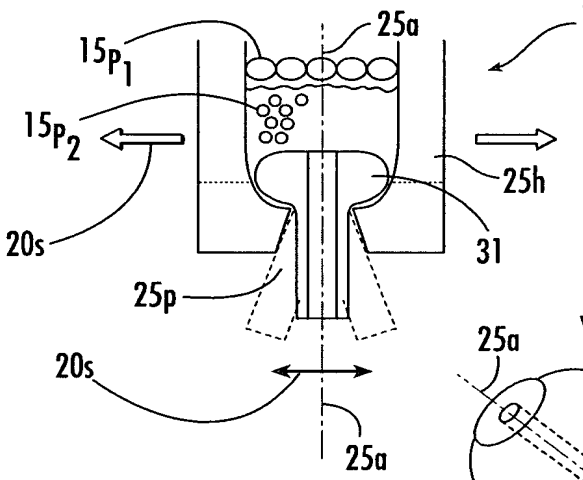


FIG. 7

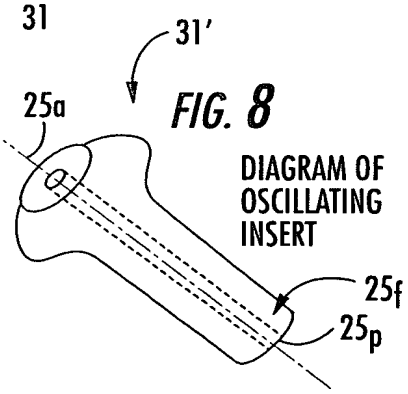


FIG. 8

DIAGRAM OF OSCILLATING INSERT

VIBRATION CAN BE APPLIED TO A RACK OF HEADS FILLING FROM SINGLE HOPPER

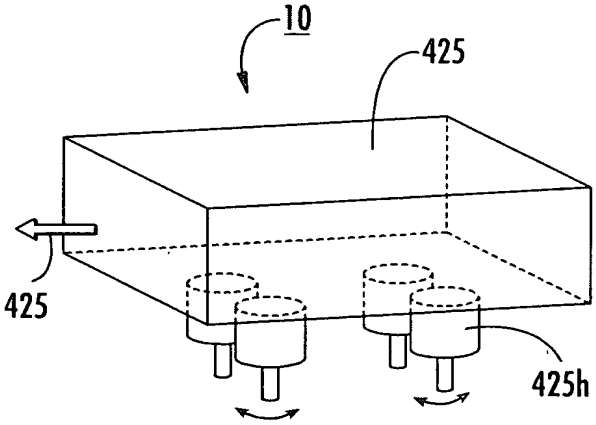


FIG. 9

RADIUS (OR EXTREMES) OF MOTION CAN BE VERY SMALL. AT HIGH FREQUENCY THE ANGULAR VELOCITY WILL BE SUFFICIENT TO GIVE DIRECTIONAL ACCELERATION TO PARTICLES.

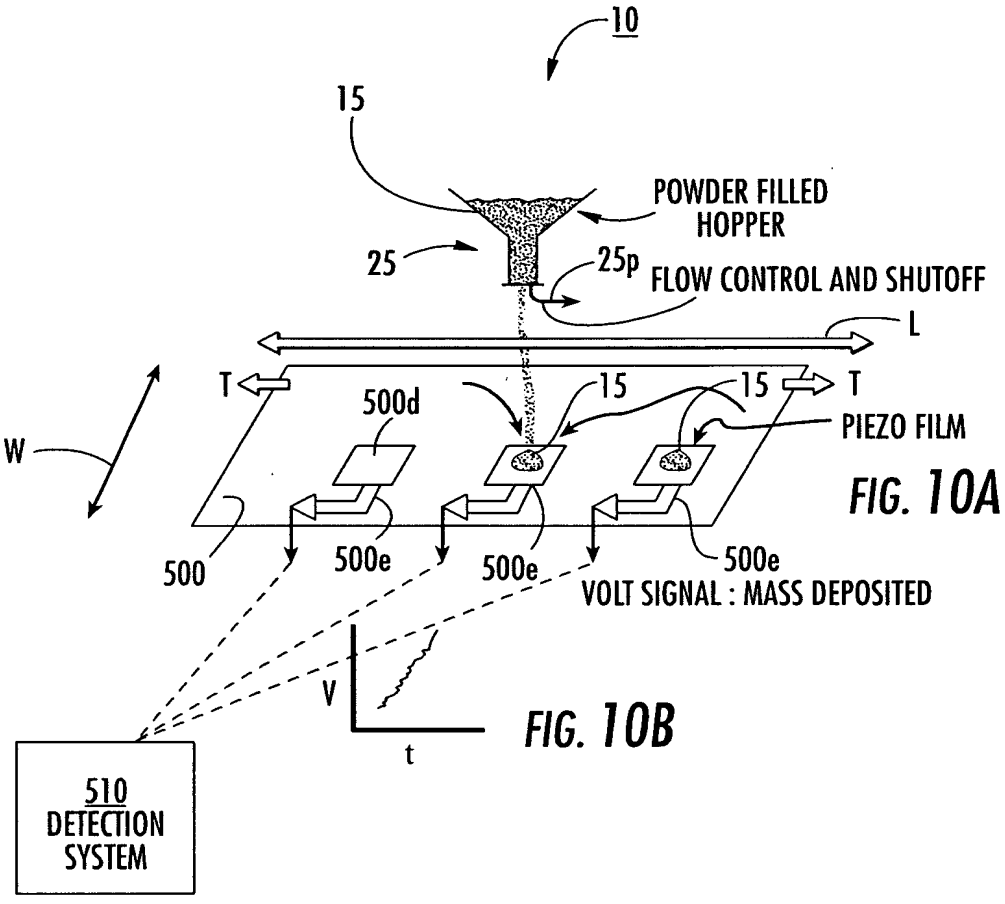


FIG. 10A

FIG. 10B

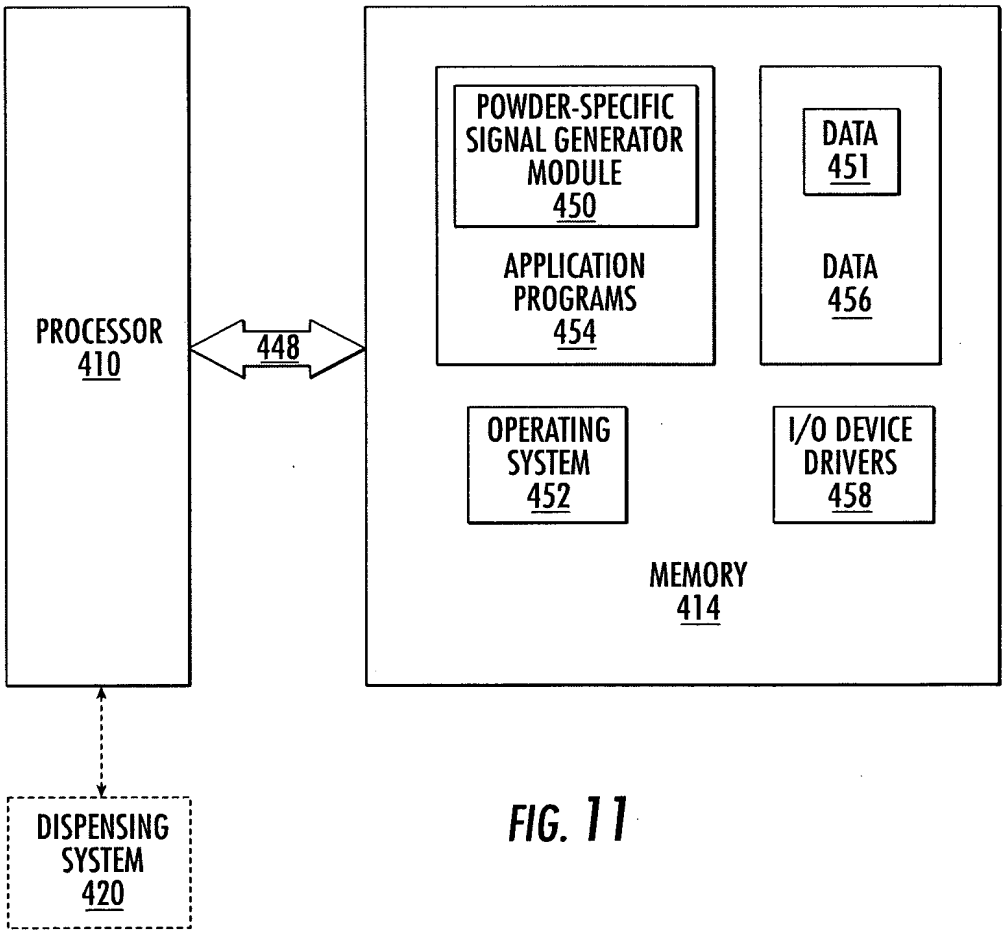


FIG. 11

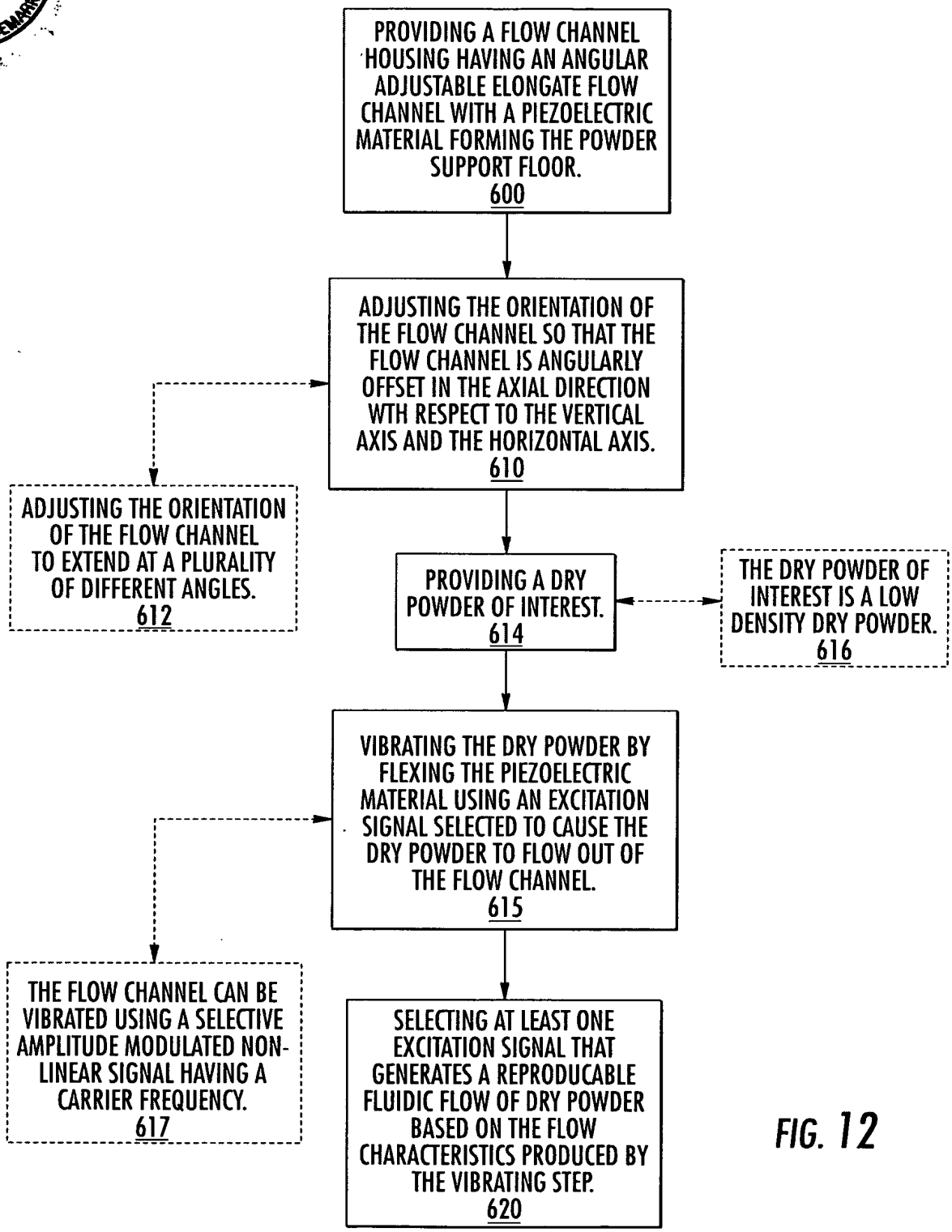


FIG. 12

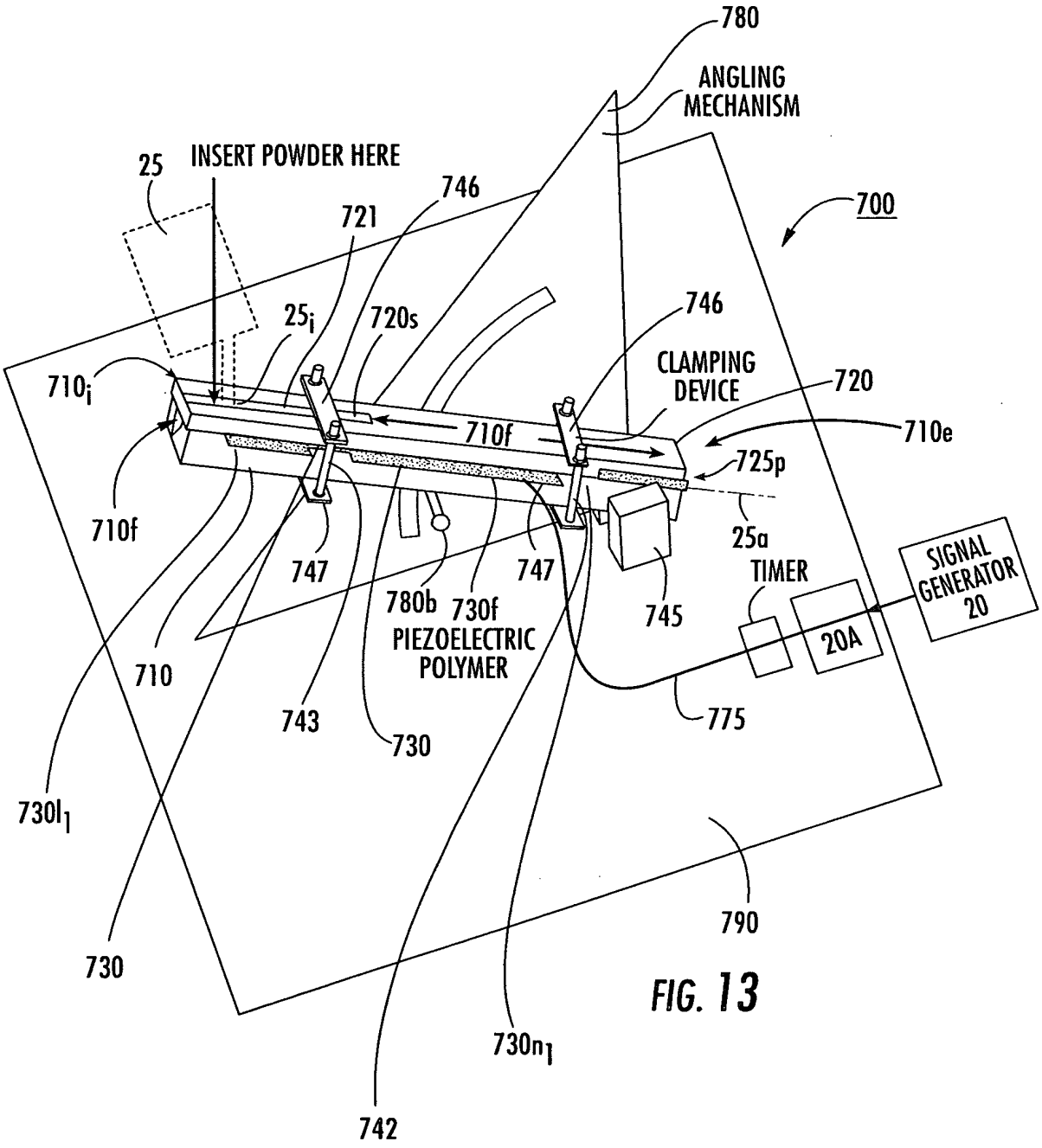


FIG. 13

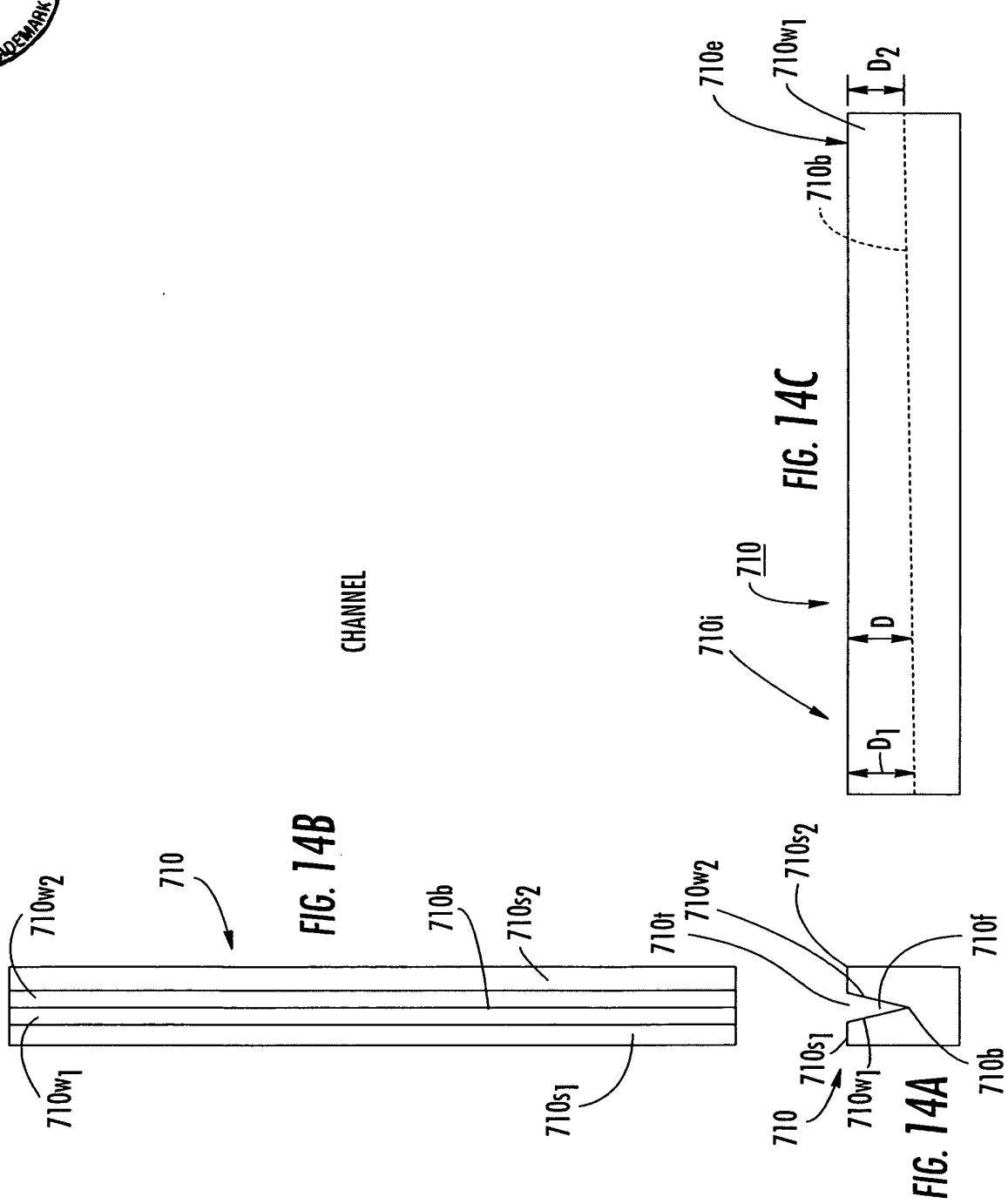


FIG. 14C

FIG. 14B

FIG. 14A

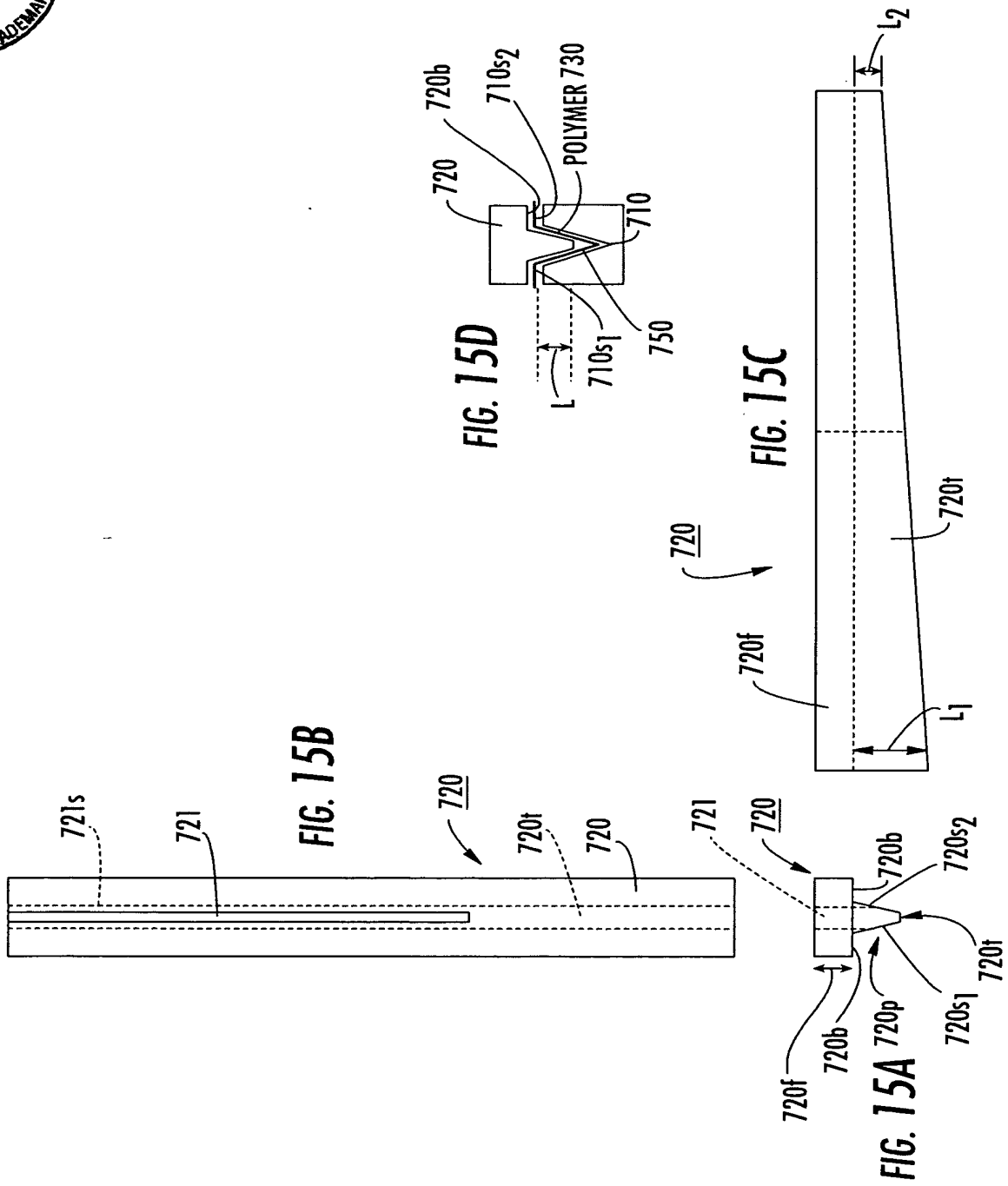


FIG. 15D

FIG. 15C

FIG. 15B

FIG. 15A

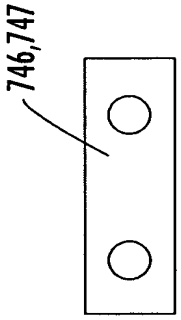


FIG. 16B

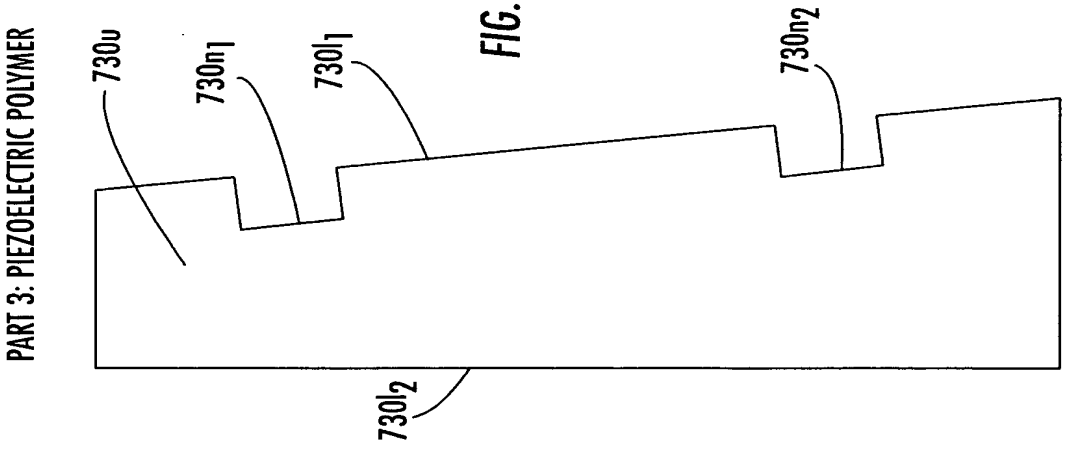


FIG. 16A

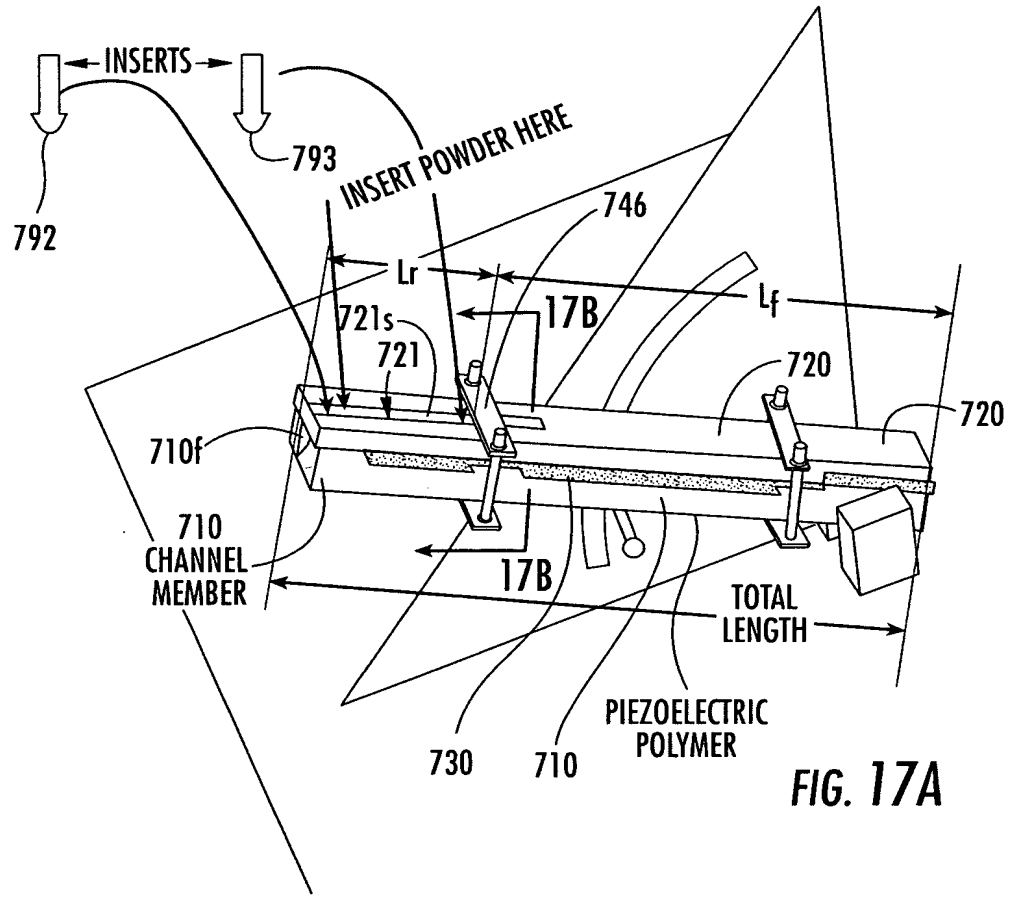


FIG. 17A

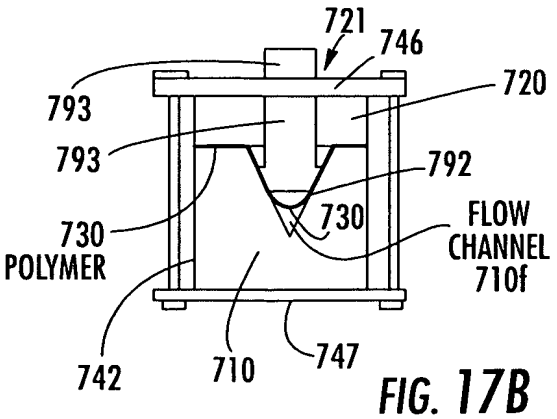


FIG. 17B